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Nonlinear conductance oscillation in strong correlation limit of molecular quantum dots near zero bias anomaly[1] JONG E. HAN, SUNY at Buffalo — Recent experiments on strong correlation effects in molecular junctions have demonstrated that the interplay of electronic coupling to molecular vibrations and the Coulomb interaction produces intriguing oscillatory structures in the nonlinear conductance near zero bias anomaly at voltages in the energy scale of, presumably, the Kondo temperature. Using the imaginary-time quantum Monte Carlo technique recently developed for strongly correlated nonequilibrium, the nonlinear conductance of the Anderson-Holstein model at finite bias has been calculated. We discuss the mapping between the charge- and spin-Kondo limits and their distinctly different transport physics under finite chemical potential bias. We show that the conductance oscillation emerges at finite bias in the vicinity of the Kondo temperature due to strong electron-vibration coupling. The origin of the oscillation is from the bias-induced strong electron density modes as opposed to direct phonon excitations.

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